Amendments to the Claims

Amend the claims as follows.

1. (Previously presented) A method of suppressing narrowband interference in OFDM receivers comprising the steps of:

acquiring samples of received data;

estimating parameters of each of a number of narrowband interferers from the acquired samples of received data;

forming an excision filter using the estimated parameters; and

inserting the excision filter into an OFDM receiver.

2. (Previously presented) A method of suppressing narrowband interference in OFDM receivers as claimed in claim 1, wherein the estimated parameters of the narrowband interferers include demodulated carrier frequency, magnitude and phase.

3. (Currently amended) A method of suppressing narrowband interference in OFDM receivers as claimed in claim 2, wherein the step of estimating parameters of each of the number of narrowband interferers comprises the steps of:

performing a forward DFT on the samples to produce an output; and

performing a periodogram search on the output of the DFT to identify peaks in a periodogram where the number of peaks in the periodogram corresponds to the number of narrowband interferers.

4. (Previously presented) A method of suppressing narrowband interference in OFDM receivers as claimed in claim 3, wherein the step of estimating parameters of each of the number of narrowband interferers comprises the steps of:

estimating frequency, amplitude and phase of each of the number of peaks in the periodogram;

estimating the demodulated carrier frequency of a narrowband interferer as the frequency of a peak on the periodogram;

estimating the magnitude of the narrowband interferer as the amplitude of a corresponding periodogram peak; and

estimating the phase of the narrowband interferer as the phase of the corresponding periodogram peak.

5. (Previously presented) A method of suppressing narrowband interference in OFDM receivers as claimed in claim 1 further comprising the step of initialising one digital phase lock loop for each estimated narrowband interferer using the narrowband interferer parameter estimates.

6. (Previously presented) A method of suppressing narrowband interference in OFDM receivers as claimed in claim 1 further comprising the step of receiving an indication of a start of packet when a data packet is received by the OFDM receiver.

7. (Currently amended) A method of suppressing narrowband interference in OFDM receivers as claimed in claim 5 further comprising the step of updating each digital phase lock loop ~~of~~ for each incoming sample until either a counter expires or an OFDM packet is detected.

8. (Cancelled)

9. (Currently amended) A method of suppressing narrowband interference in OFDM receivers as claimed in claim 5 further comprising the step of initialising the excision filter with [[a]] current narrowband interferer carrier frequency estimates from ~~the~~ each digital phase lock ~~loops~~ loop that ~~have~~ has achieved lock when an OFDM packet is detected.

10. (Previously presented) An OFDM receiver comprising:

a front end arranged to receive data;

a data sampler arranged to provide samples of the received data;

a narrowband interference detector that detects narrowband interferers in the samples of the received data and estimates parameters of each narrowband interferer; and

an excision filter that uses the estimated parameters of each narrowband interferer to reduce noise from the narrowband interferers wherein the excision filter is inserted in the OFDM receiver prior to a Fourier transform operator.

11. (Previously presented) An OFDM receiver as claimed in claim 10, wherein the narrowband interference detector estimates the demodulated carrier frequency, magnitude and phase of the narrowband interferers.

12. (Previously presented) An OFDM receiver as claimed in claim 10, wherein the Fourier transform operator is arranged to perform a Fourier transform on the samples and perform a periodogram search on the output of the Fourier transform operator to identify peaks in a periodogram and the narrowband interference detector further comprises at least one phase lock loop arranged to lock onto a peak identified by the periodogram search.

13. (Previously presented) An OFDM receiver as claimed in claim 12, wherein the narrowband interference detector is arranged to estimate frequency, amplitude and phase of each of a number of peaks in the periodogram, estimate the frequency of an interferer as the frequency of a peak on the corresponding periodogram, estimate the magnitude of the interferer as the amplitude of the corresponding periodogram peak, and estimate the phase of the interferer as the phase of the corresponding periodogram peak.

14. (Previously presented) An OFDM receiver as claimed in claim 12, wherein the narrowband interference detector includes a timer and a filter design module.

15. (Previously presented) An OFDM receiver as claimed in claim 14, wherein the OFDM receiver further comprises a pilot symbol detector to provide an estimate of the start of an OFDM data packet to the narrowband interference detector.

16. (Previously presented) An OFDM receiver as claimed in claim 15, wherein the narrowband interference detector is arranged to innovate the at least one phase lock loop until either the timer times out or the OFDM data packet is received.

17. (Previously presented) An OFDM receiver as claimed in claim 16, wherein the at least one phase lock loop is arranged to estimate the carrier frequency of the narrowband interferers.

18. (Previously presented) An OFDM receiver as claimed in claim 17, wherein one phase lock loop is used for each interferer.

19. (Currently amended) An OFDM receiver as claimed in claim 17, wherein ~~the~~ current narrowband interferer carrier frequency estimates from ~~the~~ each phase lock ~~loops~~ loop that ~~have~~ has achieved lock are used by a filter estimator to initialise the excision filter when the OFDM data packet is detected.

20. (Previously presented) An OFDM receiver as claimed in claim 10, wherein the excision filter has impulse response duration less than an OFDM guard interval.